

REMARKS

This amendment is responsive to the Office Action of November 25, 2003. Reconsideration and allowance of claims 1-47 are requested.

The Office Action

Claims 1-27, 39-41, and 43 were indicated as containing allowable subject matter.

Claims 28-30 are directed to the non-elected Group in the applicant's election of October 3, 2003.

Claims 31-34, 42, 44, and 45 stand rejected under 35 U.S.C. § 102 as being anticipated by Mohr (US 5,393,209).

Claims 35-38, 46, and 47 stand rejected as being unpatentable over Mohr in view of an alleged choice of design well-known in the art.

MPEP 2144.03 & 2144.04

Pursuant to MPEP 2144.03, the applicants hereby traverse the Examiner's assertion that the shape of the lobes and channels set forth in claims 35-38, 46, and 47 is obvious or well-known to those of ordinary skill in the art or that it involves only routine skill.

Pursuant to MPEP 2144.04, the applicants traverse the Examiner's assertion that it is the shape of the lobes as set forth in claims 35-38, 46, and 47 are mere matters of choice. To the contrary, it is asserted that the shape of the lobes and the channel have significant engineering function. For example, the shape of the lobe and groove affect a pumping rate as the lobe and mesh interact. The V-shaped cross-section tends to have a slower, smoother draw by virtue of the more gradual increase in cross-sectional area; whereas, a radius shape tends to have a faster or more sudden change in draw due to the more rapid change in cross-section. By appropriately adjusting the shape and rate of change of the cross-section of the lobe and channel, characteristics of the pumping can be engineered.

The Mohr Reference

Mohr discloses a vacuum pump having one pair of meshing helixes 12, 14, extending from an inlet to an exhaust port and a second pair of helixes 11, 13, extending from the inlet port to an exhaust port. The helixes spiral in an opposite sense such that rotation of the helixes pumps gas from the inlet to both outlets. The two helixes meet at the center with no intervening structure.

**The Claims Distinguish Patentably
Over the References of Record**

Claims 1-27 were indicated as containing allowable subject matter. The language of claim 1 has been amended in accordance with the Examiner's objection. Accordingly, it is submitted that **claims 1-27** are now in condition for allowance.

Claims 28-30 are directed to non-elected claims pursuant to a Restriction Requirement. When the application is otherwise fully in condition for allowance, the Examiner may cancel **claims 28-30** by Examiner's Amendment pursuant to MPEP 821.01.

Claim 31 calls for a pair of rotors which have inter-engaging helical threads extending from adjacent an inlet port to adjacent an exhaust port. Claim 31 further calls for an additional structure, particularly a lobe mounted adjacent the inlet port end of one of the helical threads and a cooperating channel defined adjacent the inlet port end of the other thread. Mohr makes no suggestion of placing a different structure adjacent the inlet end of the helical threads, much less a lobe and channel arrangement. Accordingly, it is submitted that **claim 31 and claims 32, 35-38, 42, and 44 dependent therefrom** distinguish patentably and unobviously over the references of record.

Claims 39, 40, 41, and 43, which were indicated as containing allowable subject matter, have been placed in independent form. Accordingly, it is submitted that **claims 39, 40, 41, and 43, along with dependent claims 33, and 34**, now distinguish patentably and unobviously over the references of record.

Claim 45 calls for providing a lobe abutting an inlet end of the helical thread of one rotor and a channel at the inlet end of the helical thread of the other rotor. Mohr teaches that two sets of helical threads on each rotor should abut each other directly with no intervening structure. Because Mohr does not teach or fairly

suggest a lobe and channel arrangement at an inlet end of intermeshing helical threads, it is submitted that **claim 45 and claims 46-47 dependent therefrom** distinguish patentably and unobviously over the references of record.

The dependent claims which call for specific shapes to the lobe and channel distinguish yet more clearly over Mohr, who fails to teach or fairly suggest that there should be any modification to the helical shape of the threads adjacent the inlet end.

Telephone Interview

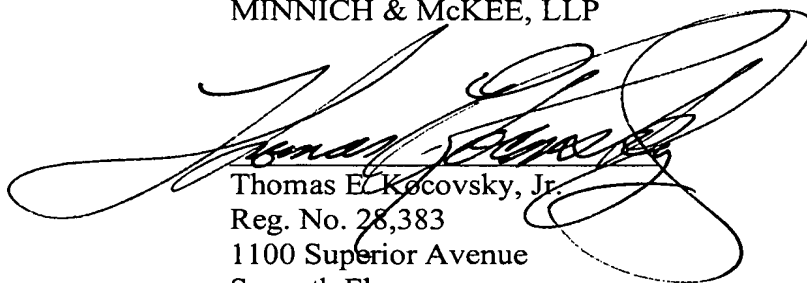
If for any reason, this application is not completely in condition for allowance, the applicants request that the Examiner telephone the undersigned to work out any remaining issues.

CONCLUSION

For the reasons set forth above, it is submitted that claims 1-47 now distinguish patentably and unobviously over the references of record and meet all statutory requirements. An early allowance of all claims is requested.

Respectfully submitted,

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A large, stylized handwritten signature in black ink, likely belonging to Thomas E. Kocovsky, Jr., is written over the printed name and address.

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